

CERA 237 (10201539)

IN THE CLAIMS

Claims 1-12 (canceled)

13. (Currently amended) A piezoceramic multilayer actuator comprising an active region, said active region further comprising inner electrodes led out alternately at a surface of said actuator, wherein, for parallel connection, said inner electrodes of identical polarity of said active region are connected to respective outer electrodes, said outer electrodes being disposed on opposite sides of said actuator; electrode-free piezoelectrically inactive regions further comprising a head region and a foot region; and a transitional region having shrinkage and expansion properties lying between the shrinkage and the expansion properties of said active and inactive regions, said transitional regions interposed between said active region and said respective inactive head and foot regions,

wherein in said transitional regions, the electrode-to-electrode spacing between the inner electrodes increases in proximity to said inactive regions and wherein said increase in the spacing of said inner electrodes in said transitional region through said head region or the foot region starts from the spacing of said inner electrodes in said active region and is effected stepwise according to a logarithmic scale.

14-20 (canceled)

21. (Currently amended) ~~The piezoceramic multilayer actuator of claim 13,~~

A piezoceramic multilayer actuator comprising an active region, said active region further comprising inner electrodes led out alternately at a surface of said actuator, wherein, for parallel connection, said inner electrodes of identical polarity of said active region are connected to respective outer electrodes, said outer electrodes being disposed on opposite sides of said actuator; electrode-free piezoelectrically inactive regions further

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Amendment is approved. 5/9/03 CWL

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comprising a head region and a foot region; and a transitional region having shrinkage and expansion properties lying between the shrinkage and the expansion properties of said active and inactive regions, said transitional regions interposed between said active region and said respective inactive head and foot regions, wherein said respective transitional regions consist of modified piezoceramic material, the shrinkage and expansion properties of said material lying within the shrinkage and the expansion properties of said active region.

22. (previously presented) The piezoceramic multilayer actuator of claim 21, wherein said properties can be influenced by doping said material with impurity atoms of the materials of the inner electrodes.

23. (previously presented) The piezoceramic multilayer actuator of claim 22, wherein the sintering properties of the material in the transitional region can be influenced by doping said material with impurity atoms of the materials of the inner electrodes.

24. (previously presented) The piezoceramic multilayer actuator of claim 23, wherein said doping exists in a concentration that is produced by natural diffusion in the active region at the boundary between an inner electrode and a ceramic material.

25. (previously presented) The piezoceramic multilayer actuator of claim 22, wherein said doping is effected with silver.

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Amendment is approved.  
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